MAXI J1621-501 distance inferred from type-I X-ray bursts detected by JEM-X

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Referred to by ATel #: 11317

During INTEGRAL observation of the Norma Region (revolution 1915) on February 3rd, 2018, a thermonuclear X-ray burst was detected by the JEM-X instruments at 21:51:08 UTC with a rise time of about 2s and a decay time of almost 40s as measured between 3-25 keV. The position of the burst (RA=245.09, Dec=-50.03; 2 arcmin error radius) on the JEM-X image is consistent with MAXI J1621-501 (ATel #10869, #10874), which has already been recorded as an X-ray burster (ATel #11067).

Considering that INTEGRAL cannot distinguish MAXI J1621-501 from AX J1620.1-5002 only separated by about 2 arcminutes, this suggests that the source which is currently seen active by INTEGRAL (ATel #11252) is MAXI J1621-501.

The source flux is measured with the following higher values compared to the previous INTEGRAL revolution (ATel #11252):
3-10 keV: 24 ±1 mCrab,
10-25 keV: 23 ±5 mCrab,
22-60 keV: 22.5 ±1.3 mCrab

The JEM-X light curves show a structure consistent with a photospheric radius expansion burst reaching the Eddington luminosity. The burst peak flux is measured at 1.5 ±0.3 Crab between 3-25 keV corresponding to an estimated unabsorbed bolometric flux of $(4.1 \pm 1)\times10^{-8}$ erg/cm^2/s. We thus derive a source distance of 8.4 ±2 kpc using the standard candle burst luminosity ($L_{Edd} = 3.8\times10^{38}$ erg/s) from Kuulkers et al. 2003; A&A 399, 663.
A similar X-ray burst is again detected from the same position during INTEGRAL revolution 1916 at 2018-02-06T03:42:05. At that time the average source fluxes are measured at 30 ±2 mCrab between 3-25 keV and 40.3 ±1.5 mCrab between 22-60 keV.

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